How to Write a CDF Procedure

This procedure outlines the form to be followed for all procedures used in the CDF experiment.

Approvals:

(CDF Department Head)	(Date)

1.0   Controlled Copies of this procedure.

Only one controlled copy of this procedure will exist.

It will be held in the CDF Department Office.

All other copies will be marked, " INFORMATIONAL COPY ONLY "

2.0   CDF Procedure Format

Each procedure will contain:

1) a title page, including a short description of the procedure and space for necessary approvals,

2) a section listing the location of all controlled copies of the procedure,

3) the procedure itself, including any prerequisites, the list of numbered steps to be followed, and any appropriate Warnings, Cautions, or Notes,

4) a section containing checklists to be used in execution of the procedure,

5) a section on deviations from the procedure,

6) a section on required training (if any), including an authorized list of people to serve as instructors for the procedure,

7) a section on training materials,

8) a section referencing the list of people who have been officially trained,

9) a section listing references and supporting documentation.

Details for each section are outlined in sections 2.1 - 2.9 of this procedure.

The entire document will be written in Microsoft Word using a font of at least 12 point in size. Each section of the procedure will begin on a new page. A floppy disk containing the Word document will be deposited in the CDF Department Office.

Each page of the document must contain the number and name of the procedure in the top left corner of every page. Contact the CDF Department Office for sequential procedure numbers. Each page of the document must contain the procedure date/time in the top right hand corner of every page. This date/time serves as the version number of the document. These page headers are accomplished via the "Document, Open Header" menu feature in Microsoft Word.

Each page must contain a footer which shows the number of the page in the lower right hand corner of each page. The page numbers should be in the format, "page x of N". This is accomplished via the "Document, Open Footer" menu feature in Microsoft Word.

Floppy disks containing the standard procedure outline are available in the CDF Department Office.

2.1.   The Title Page

The title page is page 1 of each document, and contains three sections:

(a) The procedure Title in bold underlined 18 point font.
       If the procedure is a Safety procedure, the title should include the phrase
" (this is a Safety Procedure) " immediately under the title.

       (See the CDF Department Office for an initial determination of
       which procedures are "Safety" procedures).

(b) A short description of the procedure

(c) An approval section:
       1) All procedures must be approved by the CDF Department Head.

       2) Procedures written for personnel from multilple Research Division
Departments must be approved by each Department Head and by
the Research Division Head.

       3) Safety Procedures must be approved by the Research Division Head
       and by the Accelerator Division Head.

    The CDF Department Office will coordinate the approval process.

2.2.   The Controlled Copies Section.

This section must list the location of every official copy of the procedure.

In general:
       (a) One official copy of each procedure must reside in the CDF
       Department Office, both in paper form and on a floppy disk,

       (b) Additional official copies should reside with other Research Division
       Departments if their personnel are required in the procedure,

       (c) One official copy must reside in the Research Division Office if the
       Research Division Head is required to approve the procedure,

       (d) One official copy must reside in the Accelerator Division Office if the
       Accelerator Division Head is required to approve the procedure,

(e) **At least one official copy should reside at the point of use**.
That is with the group responsible for carrying out the procedure.

This section must contatin the statement that all other copies will be marked,
" INFORMATIONAL COPY ONLY ".

2.3   The Procedure Section.

This section should contain a complete description of the procedure in numbered
steps. This is the actual section people will use and it should be clear, consise, and self-
sufficient.

The following list is an example:

(a)   Step 1 is always a list of prerequisites.
                Prerequistes can be special people, special training required,
special equipment, checklist forms, . . .

(b)   Step 2: Obtain authorization from ...

(c)   Step 3: Post ...

(d)   Step 4: Check this ....

(e)   Step 5: Do this ...

WARNING: a warning message alerts readers to situations which may
cause injury. It must immediately <u>precede</u> the procedure step to
which it applies.

Warnings can appear before Step 1 of the procedure if
appropriate.

The same Warning should not be repeated countless times
throughout the procedure.

(f)   Step 6: Perform the following :

CAUTION: a caution message alerts readers to situation which may
cause damage to equipment or systems. It must immediately
<u>precede</u> the procedure step to which it applies.

(g)   Step 7: Do this ...

NOTE: a note message alerts readers to possible problems and to prior
knowledge which they are expected to have. It must immediately
<u>precede</u> the procedure step to which it applies.

(h)   Step 8: Complete the following ...

2.4   Checklist Section

This section should contain any checklists used with the procedure. The section should indicate where people can find blank checklists.

Special checklists called " Procedure Execution Forms " are normally required in all Safety procedures to provide a written record that the procedure has been followed. If such a form is not required, an explanation must appear in the checklist section.

Safety Procedure Execution Forms must contain the following:

a) a clearly labelled blank line where the date can be recorded.

b) a clearly labelled blank line where the person(s) executing the procedure must sign (and also legibly print her name and ID#).

c) a statement indicating where the completed form will be posted.

There are only four appropriate posting places :

1) the CDF logbook in the CDF Control Room,
2) the CDF SOD logbook in the CDF Control Room,
2) the CDF Cryo logbook in the CDF Cryo control room,
3) the CDF Gas system logbook in the CDF Gas Tech area.

All Procedure Execution Forms should contain space to specifically note any deviations from the procedure (see section 2.5).

2.5   Section on Deviations from the Procedure

This is the trickiest section to write. The idea is to give people some guidance on how to proceed if some step of the written procedure cannot be executed or should not be executed.

Clearly if you could anticipate all possible deviations, you could just put each case in the body of the procedure as an " If this . . ., then do this . . . " step. However, we must

recognize that in a research environment like CDF, sometimes we need to do things differently than originally planned.

It may also be physically impossible to fully execute a procedure because some piece of equipment fails; nevertheless, it may be perfectly legitimate to carry on with the research program. Often this may not even result in any delay to the program because the piece of failed equipment is not required for the next immediate phase of the experiment.

So we should not necessarily just come to a full stop and require a new procedure complete with all levels of sign-offs. Instead we should **think** about the basic purpose of the procedure, **confer** with people next in the chain of command, **think** if there are any Environment, Health, and Safety impacts which could stem from not executing a step of the procedure, and possibly continue with a **DEVIATION** in the procedure. **Such DEVIATIONS must always be recorded in an appropriate place** (e.g. logbooks, on checksheets, on Procedure Execution Forms).

> An example: The Collision Hall Search and Secure procedure requires a Toroid checkout procedure. Now suppose that during the checkout it is determined that the toroids cannot pass the checkout and cannot be repaired within a reasonable time. It is perfectly reasonable to confer with the CDF Shift Captain and CDF Operations Manager, then conclude that RD / SOD Search and Secure team will leave the Toroid Power supply "locked out". The CDF experiment will proceed to run without powered Toroids. This in no way violates the basic safety meant to be enforced by the Search and Secure Procedure -- i.e. that no personnel were left inside the Collision Hall enclosure to be harmed by accelerator beam, powered low beta quads, the powered solenoid, or the powered Toroids.

> Another example: The CDF experiment wishes to take data with the Toroids off, and wishes to enforce this by leaving the Toroids "locked out". Thus the step requiring removal of the Toroid "lock-out" cannot be executed.

> Another example: The Accelerator Division wishes to run Tevatron beam with the CDF Toroids off to check the influence of the Toroids on the Tevatron beam orbit. They may request this be enforced by leaving the Toroids "locked out".

> Another example: The CDF experiment requests a powered checkout of the Toroid system in a circimstance with people present in the Collision Hall.
> The Search and Secure Procedure is inappropriate, but the safety system requires the full Search and Secure Procedure before the Toroids can be powered. This case requires a special sign-off within the Accelerator Division countersigned by the Research Division Head so that the safety system can be "jumpered out". Depending on the circumstances, the Accelerator Division Safety Officer may require new and additional safeguards which cannot be written down as a CDF procedure.

Some guidance possiblities:

   a) Outline circumstances under which people could complete the rest of the
   procedure and use a "Lock Out / Tag Out " procedure to enforce
   compliance with the procedure. That is, if we can't check that a piece of
   equipment is in the proper state, we can lock it out and still carry on.

   b) Give people a call list so they know who to contact for repairs.

   c) Give people a call list so they know who to contact for authorization to skip a
   part of the proceedure (e.g. the CDF Department Head if that was the
   only signature required to authorize the procedure initially).

2.6   Section on Required Training and Authorized Training Personnel.

This section should outline all training or qualifications required by personnel
executing the procedure.

This section should also list those individuals authorized to do the training.
Typically, senior personnel with previous experience can be considered qualified. Note
that this list appears in the procedure and is authorized by the signatures on the title page.
Make sure enough qualified people are listed to avoid getting the authorizations over and
over again. You may want to include an explanation of why each person is a qualified
instructor.

Eventually this information may reside in a lab-wide database, for now follow the
form indicated below:

   LIST OF AUTHORIZED INSTRUCTORS FOR THIS PROCEDURE:

   Name   I.D.#
   Last, First

2.7   Training Materials Section.

This section should contain any materials used in training people to execute the
procedure. The section should begin with a table of contents of the materials.

Examples are copies of training material handouts, maps, videos, tests to check the
training, written explanations with attached sign-off sheets, . . .

2.8   Section Listing Trained People for this procedure.

        This section should reference the place(s) where a list of those individuals appropriately trained can be found.

        Eventually the list may reside in a lab-wide database. Until that time, such lists should be maintained with each copy of the procedure in a special section at the end of the procedure. The list is not considered part of the procedure and does not need to be authorized by those signing the title page. The list is considered part of the controlled document and all controlled copies of the document must have the up-to-date list.

        However, if training by an authorized instructor is required, that instructor must sign a training form and the form must reside in the CDF Department Office copy of the procedure. Such a training form must include the name and ID# of the person trained, the date of training, the date the training expires, the signature of the person who was trained, and the signature of the instructor.

2.9   Section on References and Supporting Documentation.

        List books, binders, manuals, or any other information necessary to understand this procedure.

3.0   Checklist

Does not apply to this procedure.

4.0 Deviations from the Procedure

An obvious acceptable deviation from this procedure is to avoid the requirement that the procedure be written with Microsoft Word. For procedures being retrofit to this format, this may be a major waste of effort -- previously written sections could be left in an old format. In case of time pressure, even a handwritten procedure can be acceptable if it is legible. Just confer with the Department Office.

5.0   Required Training and Authorized Training Personnel.

There is no required training for this procedure.

6.0   Training Materials.

There are no special training materials for this procedure.

Section 2.0 is meant to be self - sufficient.

7.0   List of Trained People for this procedure.

Does not apply in this procedure.

8.0   References and Supporting Documentation.

See CDF-2 - "Procedure for Search and Secure of the Collision Hall" as an example of a CDF Procedure.